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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,217	06/04/2007	Paivi Maatta	0696-0246PUS1	6692
2292 7590 10/04/2011 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER MCNALLY, DANIEL				
ART UNIT		PAPER NUMBER		
1747				
NOTIFICATION DATE		DELIVERY MODE		
10/04/2011		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Office Action Summary****Application No.**

10/587,217

**Applicant(s)**

MAATTA ET AL.

**Examiner**

DANIEL MCNALLY

**Art Unit**

1747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 5) ☒ Claim(s) 1-14 and 16-20 is/are pending in the application.  
5a) Of the above claim(s) 3, 5-7 and 9-11 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1, 2, 4, 8, 11-14 and 16-20 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CIB-08)  
Paper No(s)/Mail Date \_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/6/2011 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1, 2, 4, 8, 11-14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kammler [DE19516726A1, of record, previously cited] in view of Dries et al. [US2003/0003296, of record, previously cited, "Dries"] and Maeno [JP3-113353A, newly cited].**

Kammler discloses a method of sealing packaging material, specifically a fibre-based material (plastic coated paperboard) to a counter surface to be bonded to the material by melting polymer (plastic coating) at the seal point. The method comprises directing a laser beam (15) through a fibre layer (paperboard 2u) of the material to a radiation absorbent sealing area (27) which the absorbed heat melting the plastic

polyethylene coating and generating the sealing. Kammler suggests a pigment is present at the sealing area by disclosing the radiation absorption is improved by including a substance provided in the sealing area, but does not explicitly recite a "pigment." Kammler discloses laser welding equipment (43) but is silent as to the laser source being a diode or Nd:YAG laser, and the laser beam having a wavelength not greater than 1500nm. .

Dries discloses a method of sealing packing material. The method comprises laser welding a packaging material comprising a polyolefin film, wherein a laser beam is irradiated through layers of packaging material to the polyolefin film where the laser beam is absorbed by an absorbent material that generates heat in the polyolefin film to bond the film to an adjacent layer (paragraphs 0004-0005). Dries discloses the polyolefin film can be bonded to itself or another film (paragraph 0007). Dries discloses the laser absorbing additive improves the absorption of the wavelength and discloses a known additive as carbon black that is incorporated into the polyolefin film (paragraph 0038, 0043). Dries discloses a known laser type for welding packaging films includes diode and Nd:YAG lasers (paragraph 0084).

Kammler discloses laser welding by passing a laser beam through paper to a laser beam absorbing material, and Dries discloses diode and Nd:YAG are known lasers for laser welding. Maeno provides evidence that at the time of invention it was known to pass a laser beam through a paper material. Additionally, Maeno discloses a suitable laser beam for passing through paper, wherein the laser beam has a wavelength in the near infrared range (750nm – 1400nm) and is generated by a laser

diode. Maeno teaches the claimed laser type and beam with a wavelength within the claimed range is suitable for passing through a paper material.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of Dries by incorporating a pigment into the plastic coating as taught by Dries in order to improve the absorption efficiency of the plastic coating, and to use a laser source that is a diode to generate a laser beam with a wavelength between 750nm and 1400nm as taught by Dries and Kammler in order to ensure the laser beam is capable of passing through paper and sufficiently heating the polymer to form a weld.

With regard to claims 2 and 12-14, Kammler discloses a polymer coated paper board (2u) is welded to a counter surface (2v) by contacting the polymer coatings (13, 14) on each of the paperboards (Figure 6). Dries discloses the packaging material comprising the polymer outer layer can be bonded to itself, to an opposite surface of the material, or to another film (paragraph 0007).

With regard to claims 4, 8 and 11, Kammler suggests a pigment is present at the sealing area by disclosing the radiation absorption is improved by including a substance provided in the sealing area. Dries discloses a carbon black material is incorporated into the polymer film that is to be welded (paragraph 0038, 0043).

With respect to claim 16, Maeno and Dries disclose the laser source of the laser beam is a diode. Maeno provides evidence that laser beams from a diode laser source are suitable for passing through paper material.

With respect to claims 17-19, Dries discloses Nd:YAG laser sources as an alternative to diode laser sources, and one of ordinary skill would have readily appreciated substituting known alternatives to achieve their intended function of forming a weld. It is well known Nd:YAG lasers produce a laser beam with a fundamental wavelength of 1064nm, which is within the range disclosed by Maeno as suitable for passing through a paper material.

With respect to claim 20, Maeno discloses the laser beam has a wavelength in the near infrared or between 750nm and 1400nm.

**4. Claims 1, 2, 4, 8, 11-14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kammler in view of Dries and Tankovich [US5614339, newly cited].**

Kammler discloses a method of sealing packaging material, specifically a fibre-based material (plastic coated paperboard) to a counter surface to be bonded to the material by melting polymer (plastic coating) at the seal point. The method comprises directing a laser beam (15) through a fibre layer (paperboard 2u) of the material to a radiation absorbent sealing area (27) which the absorbed heat melting the plastic polyethylene coating and generating the sealing. Kammler suggests a pigment is present at the sealing area by disclosing the radiation absorption is improved by including a substance provided in the sealing area, but does not explicitly recite a "pigment." Kammler discloses laser welding equipment (43) but is silent as to the laser source being a diode or Nd:YAG laser, and the laser beam having a wavelength not greater than 1500nm. .

Dries discloses a method of sealing packing material. The method comprises laser welding a packaging material comprising a polyolefin film, wherein a laser beam is irradiated through layers of packaging material to the polyolefin film where the laser beam is absorbed by an absorbent material that generates heat in the polyolefin film to bond the film to an adjacent layer (paragraphs 0004-0005). Dries discloses the polyolefin film can be bonded to itself or another film (paragraph 0007). Dries discloses the laser absorbing additive improves the absorption of the wavelength and discloses a known additive as carbon black that is incorporated into the polyolefin film (paragraph 0038, 0043). Dries discloses a known laser type for welding packaging films includes diode and Nd:YAG lasers (paragraph 0084).

Kammler discloses laser welding by passing a laser beam through paper to a laser beam absorbing material, and Dries discloses diode and Nd:YAG are known lasers for laser welding. Tankovich provides evidence that at the time of invention it was known to pass a laser beam through a paper material (column 2, lines 35-38). Additionally, Tankovich discloses a suitable laser beam for passing through paper, wherein the laser beam is generated by a Nd:YAG laser and has a wavelength of 1064nm (column 3, line 58 – column 4, line 16). Tankovich teaches the claimed laser type and beam with a wavelength within the claimed range is suitable for passing through a paper material.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of Dries by incorporating a pigment into the plastic coating as taught by Dries in order to improve the absorption efficiency of the plastic

coating, and to use a laser source that is a Nd:YAG laser to generate a laser beam with a wavelength of 1064nm as taught by Dries and Tankovich in order to ensure the laser beam is capable of passing through paper and sufficiently heating the polymer to form a weld.

With regard to claims 2 and 12-14, Kammler discloses a polymer coated paper board (2u) is welded to a counter surface (2v) by contacting the polymer coatings (13, 14) on each of the paperboards (Figure 6). Dries discloses the packaging material comprising the polymer outer layer can be bonded to itself, to an opposite surface of the material, or to another film (paragraph 0007).

With regard to claims 4, 8 and 11, Kammler suggests a pigment is present at the sealing area by disclosing the radiation absorption is improved by including a substance provided in the sealing area. Dries discloses a carbon black material is incorporated into the polymer film that is to be welded (paragraph 0038, 0043).

With respect to claim 16, Dries discloses diode laser as an alternative to Nd:YAG lasers, and one of ordinary skill would have readily appreciated substituting known alternatives to achieve their intended function of forming a weld.

With respect to claims 17-19, Tankovich and Dries disclose the laser source of the laser beam is a Nd:YAG laser. Tankovich provides evidence that laser beams from a Nd:YAG laser are suitable for passing through paper material.

With respect to claim 20, Tankovich discloses the laser beam has a wavelength of 1064nm.



***Response to Arguments***

5. Applicant's arguments with respect to claims 1, 2, 4, 8, 11-14, and 16-20 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues Kammler and Dries do not disclose a laser beam having the claimed wavelength.

Kammler discloses a laser beam that passes through paper material, but is silent as to the wavelength of the laser beam. Newly cited Maeno and Tankovich each disclose a laser beam suitable for passing through paper material, and that has wavelength within the claimed range.

Applicant argues there is no rationale and expectation of success based on the combination of Kammler and Dries.

Kammler discloses a laser beam that passes through paper material, but is silent as to the wavelength of the laser beam. One of ordinary skill would be motivated to select a wavelength that is known to pass through a paper material, and such wavelengths are taught by Maeno and Tankovich. One in view of the cited references would have a reasonable expectation of success, as Kammler discloses laser that passes through paper to create a seal, and Maeno and Tankovich disclose suitable laser properties for passing through a paper material.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MCNALLY whose telephone number is

(571)272-2685. The examiner can normally be reached on Monday - Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DANIEL McNALLY/  
Examiner, Art Unit 1747

DPM  
September 27, 2011